SUZUKI

AN650

SERVICE MANUAL

99500-36110-01E

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FOREWORD

This manual contains an introductory description on the SUZUKI AN650 and procedures for its inspection/service and overhaul of its main components. Other information considered as generally known is not included.

Read the GENERAL INFORMATION section to familiarize yourself with the motorcycle and its maintenance. Use this section as well as other sections to use as a guide for proper inspection and service. This manual will help you know the motorcycle better so that you can assure your customers of fast and reliable service.

* *This manual has been prepared on the basis of the latest specifications at the time of publication. If modifications have been made since then, differences may exist between the content of this manual and the actual motorcycle.*
* *Illustrations in this manual are used to show the basic principles of operation and work procedures. They may not represent the actual motorcycle exactly in detail.*
* *This manual is written for persons who have enough knowledge, skills and tools, including special tools, for servicing SUZUKI motorcycles. If you do not have the proper knowledge and tools, ask your authorized SUZUKI motorcycle dealer to help you.*

⚠ WARNING

Inexperienced mechanics or mechanics without the proper tools and equipment may not be able to properly perform the services described in this manual.
Improper repair may result in injury to the mechanic and may render the motorcycle unsafe for the rider and passenger.

SUZUKI MOTOR CORPORATION

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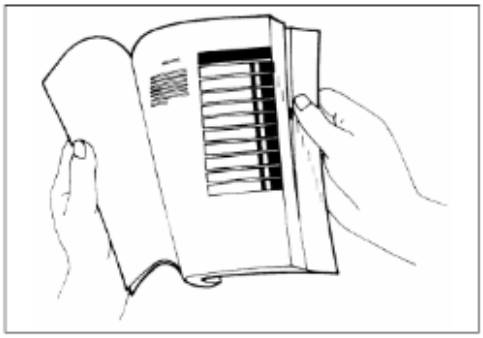
HOW TO USE THIS MANUAL

TO LOCATE WHAT YOU ARE LOOKING FOR:

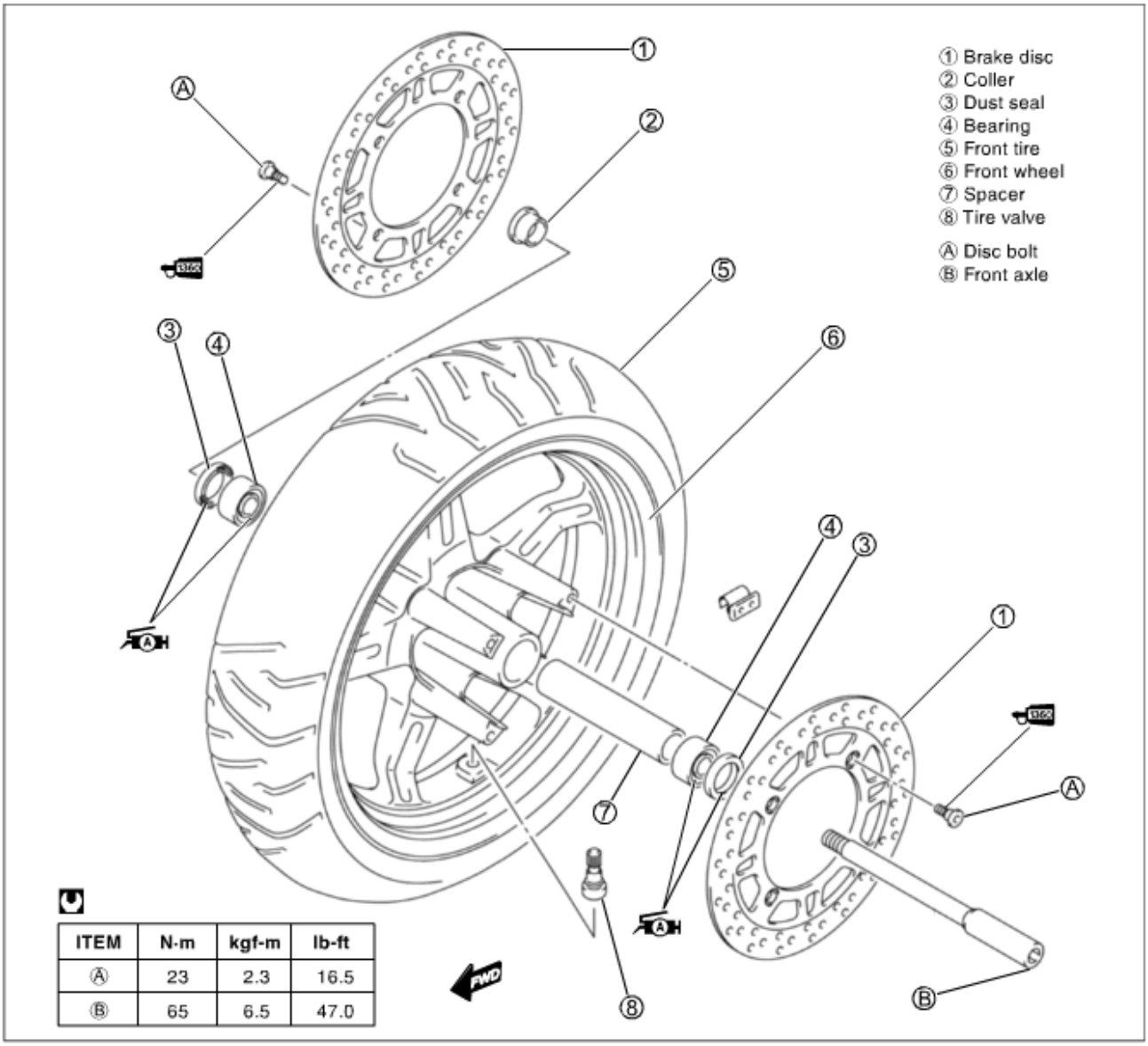
1. The text of this manual is divided into sections.
2. The section titles are listed in the GROUP INDEX.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. The contents are listed on the first page of each section to help you find the item and page you need.



COMPONENT PARTS AND WORK TO BE DONE

Under the name of each system or unit, is its exploded view. Work instructions and other service information such as the tightening torque, lubricating points and locking agent points, are provided.

Example: Front wheel



ITEM	N·m	kgf-m	lb-ft
Ⓐ	23	2.3	16.5
Ⓑ	65	6.5	47.0

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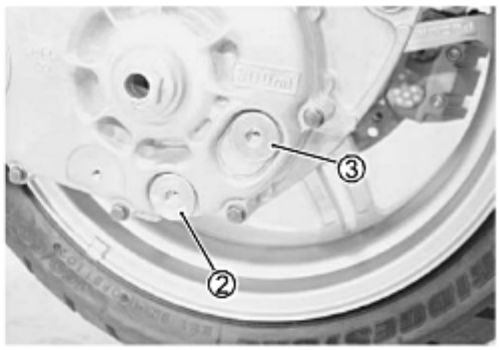
- Remove the oil drain plug ② and oil level plug ③.
- Tighten the oil drain plug ② to the specified torque, and pour fresh oil through the oil level hole until the oil over flows from the oil level hole.

Drain plug: 33 N·m (3.3 kgf-m, 24.0 lb-ft)

- Tighten the oil level plug ③ to the specified torque.

Oil level plug: 33 N·m (3.3 kgf-m, 24.0 lb-ft)



Oil viscosity and classification
: Hypoid gear oil SAE #90 API grade GL-5

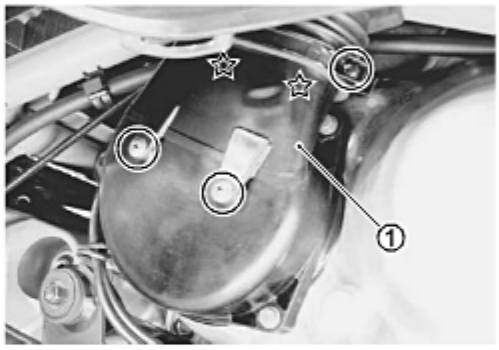
NECESSARY AMOUNT OF FINAL GEAR OIL
Oil change: 300 ml (10.1/10.6 US/Imp oz)
Overhaul: 430 ml (14.5/15.1 US/Imp oz)

CVT FILTER

Inspect every 12 000 km (7 500 miles, 12 months).

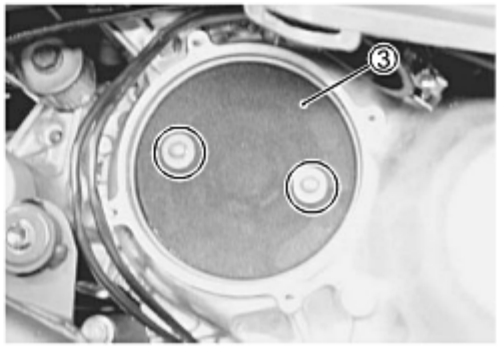
- Remove the leg side cover. (☞9-12)
- Remove the CVT filter lid ①.

☆: hooked part



- Remove the CVT filter cover ②.

- Remove the CVT filter ③.



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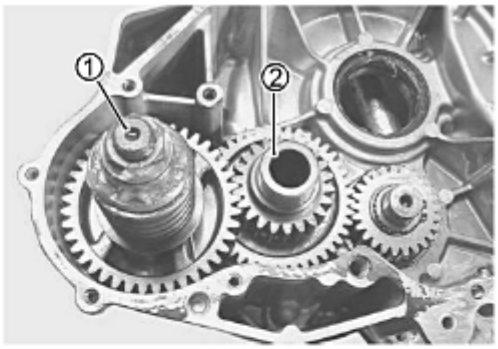
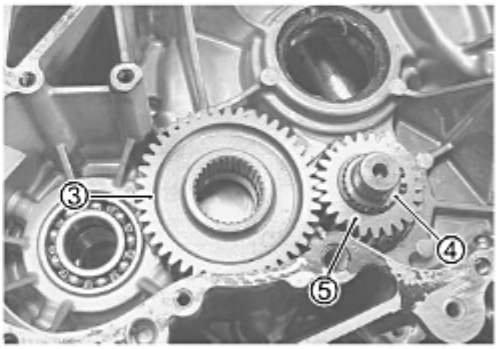
DRIVESHAFT

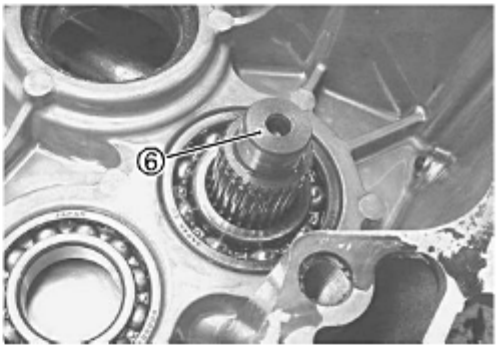
- Remove the driveshaft assembly ① and idle shaft ②.



- Remove the idle gear ③.
- Remove the circlip ④ and counter drive gear ⑤.



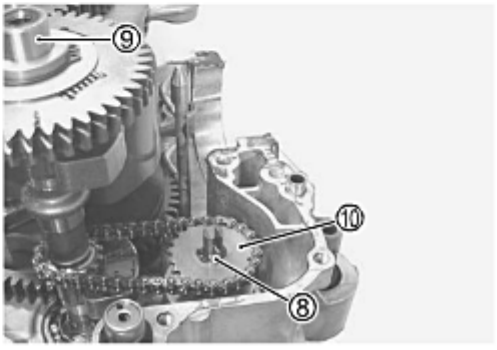
- Remove the counter drive gear shaft ⑥.



BALANCER SHAFT

- Remove the upper balancer shaft ⑦.

- Remove the circlip ⑧, lower balancer shaft ⑨, oil pump gear ⑩ and oil pump drive chain.



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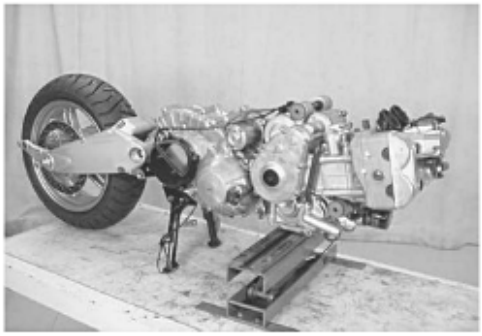
CVT ASSEMBLY REMOVAL AND INSTALLATION

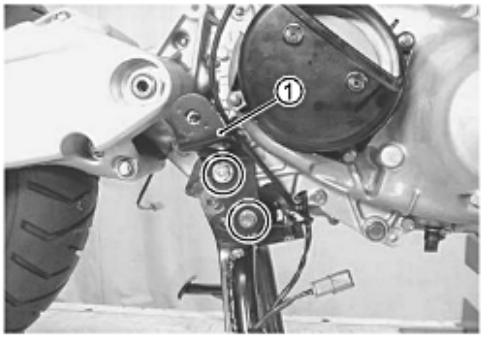
CVT ASSEMBLY REMOVAL

- Remove the engine assembly.

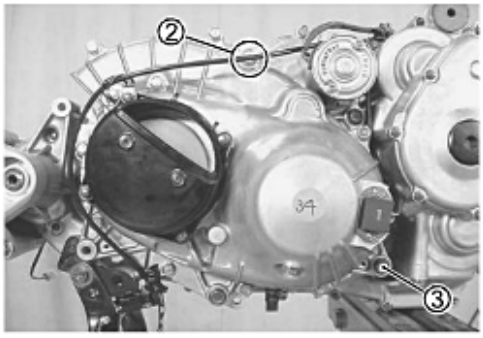
ENGINE REMOVAL ☞3-3



- Remove the bracket ①.

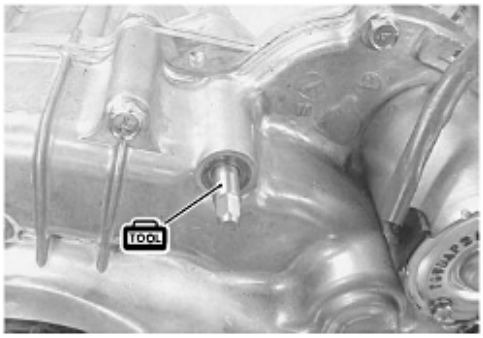


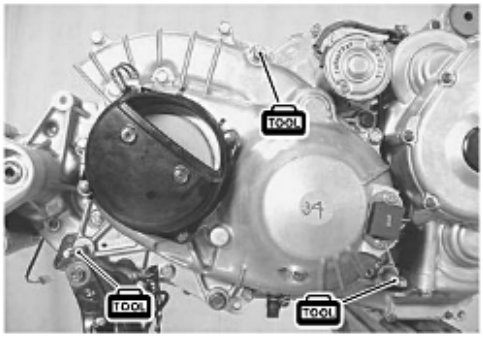
- Remove the bolts, ② and ③.



- Install the special tool as shown.

09920-31050: CVT guide





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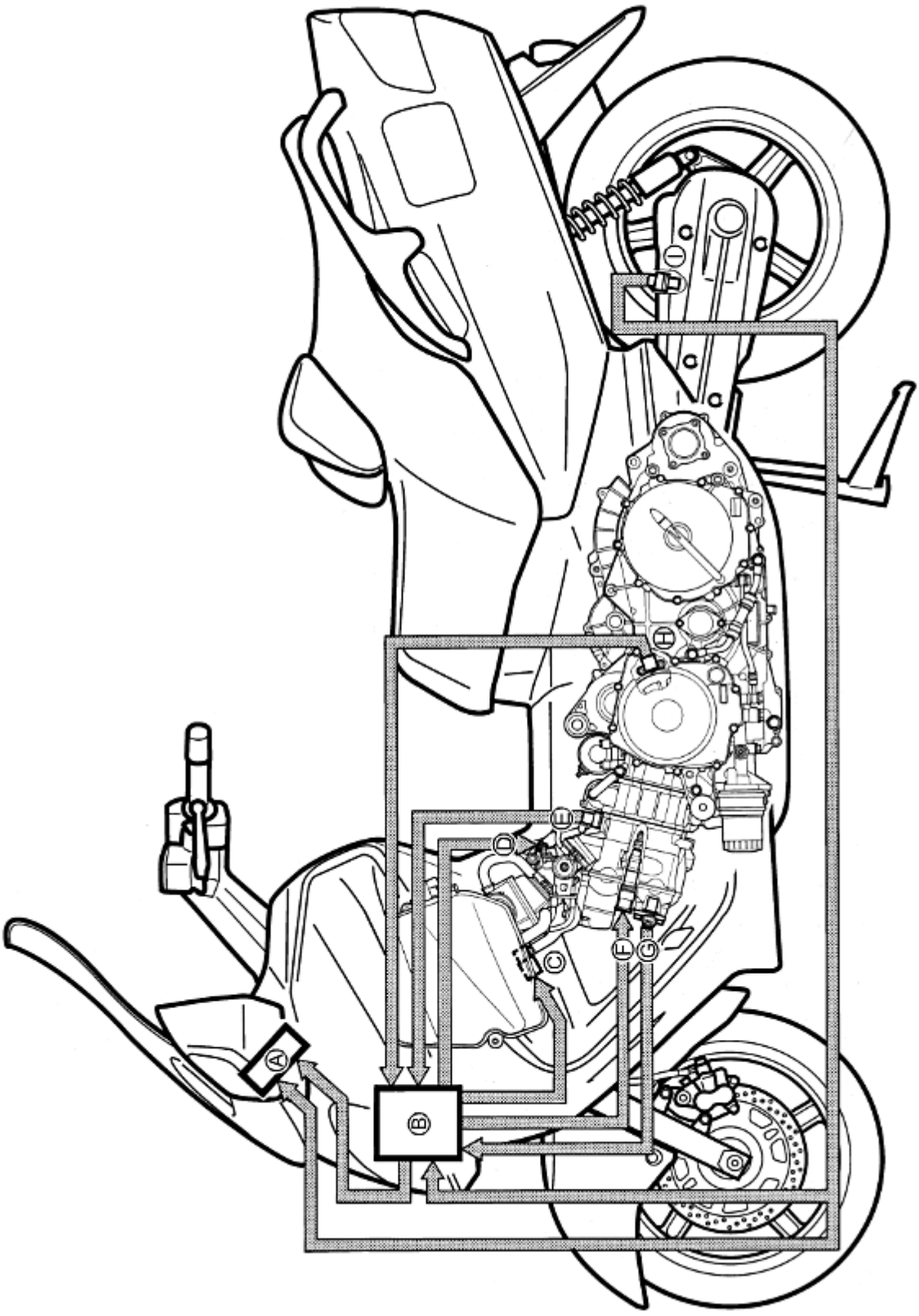
FI SYSTEM PARTS LOCATION


Ⓐ Combination meter
Ⓑ ECM
Ⓒ PAIR control solenoid valve
Ⓓ Fuel injector (FI)
Ⓔ Engine coolant temperature sensor (ECTS)
Ⓕ Ignition coil (IG COIL)
Ⓖ Camshaft position sensor (CMPS)
Ⓗ Crankshaft position sensor (CKPS)
Ⓘ Speed sensor

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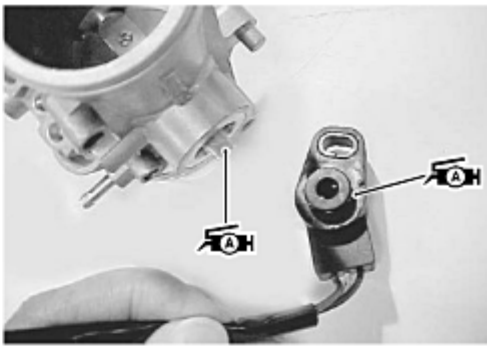
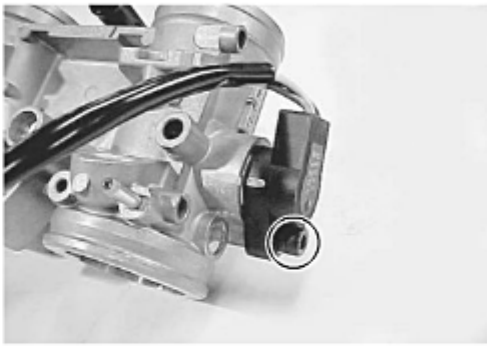
- Apply a small quantity of grease to the shaft end and seal lip.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



- With the TV fully closed, install the TP sensor to the original setting position.

TP sensor mounting screw: 3.5 N·m (0.35 kgf-m, 2.5 lb-ft)



- Install the IAC valve.

CAUTION

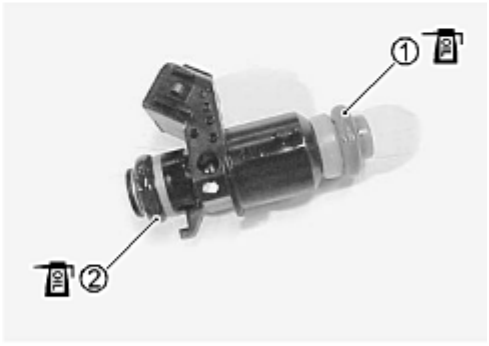
Replace the O-ring with a new one.

- Apply thin coat of the engine oil to the new O-ring.

- Install the injector seal ① and O-ring ② to each fuel injector.
- Apply thin coat of the engine oil to the new O-ring and new seal.
- Install the fuel injectors by pushing them straight to each throttle body.

CAUTION

Replace the injector seal and O-ring with the new ones. Never turn the injector while pushing it.



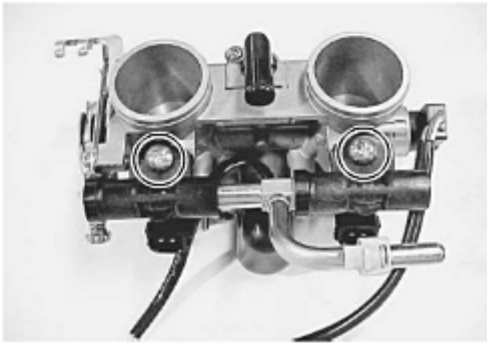
- Install the fuel delivery pipe assembly to the throttle body assembly.

CAUTION

Never turn the fuel injectors while installing fuel delivery pipe.

- Tighten the fuel delivery pipe mounting screws.

Fuel delivery pipe mounting screw: 3.5 N·m (0.35 kgf-m, 2.5 lb-ft)



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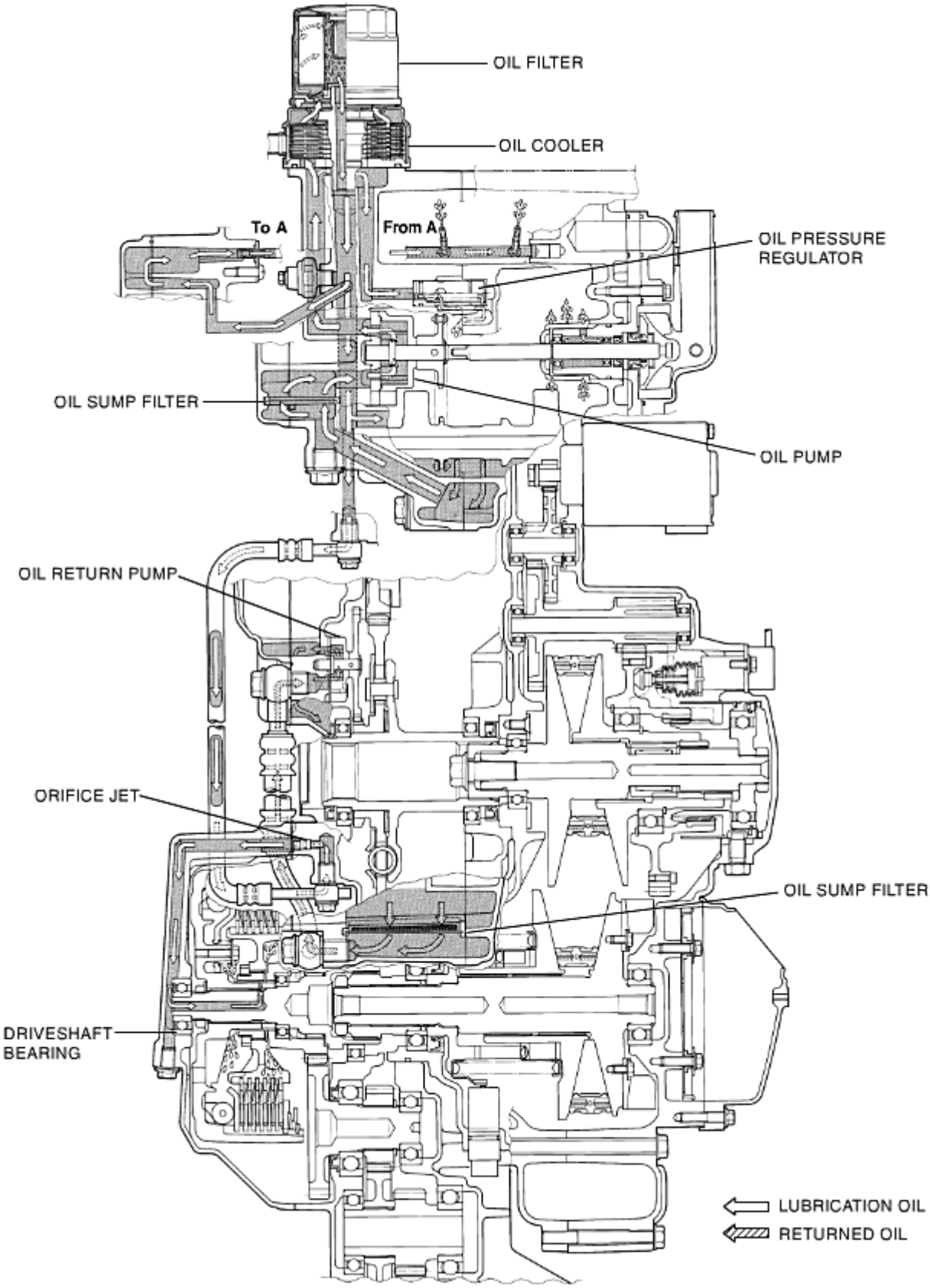

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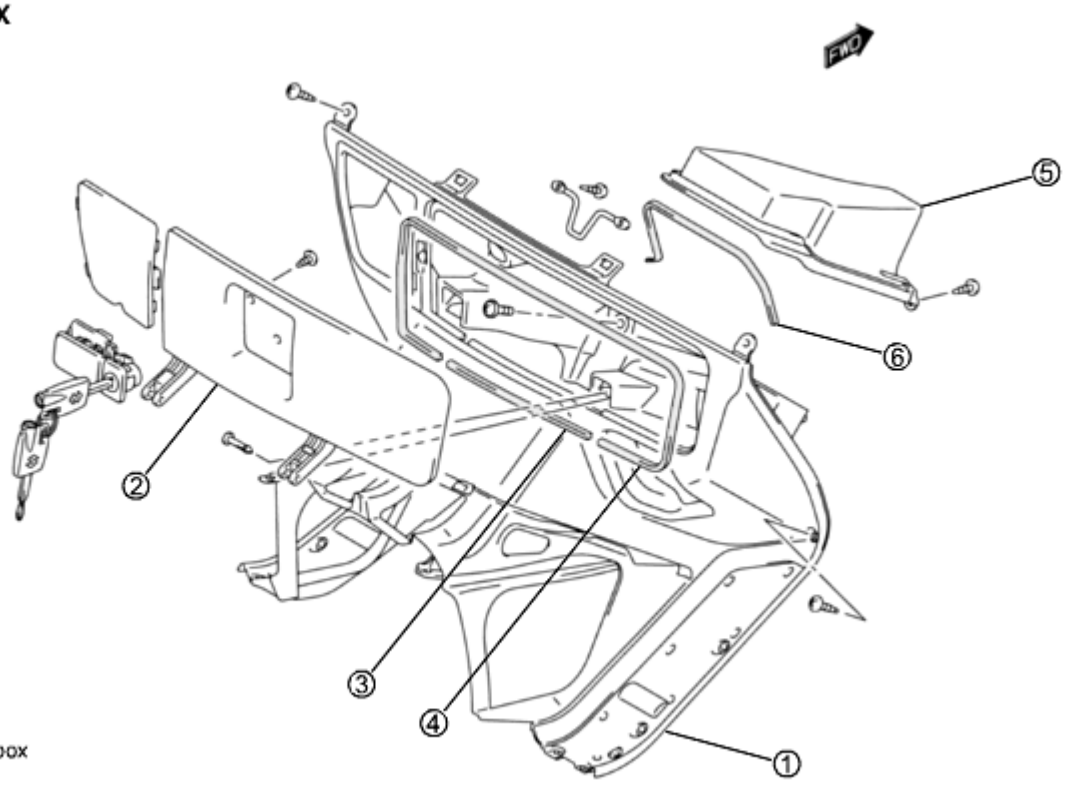
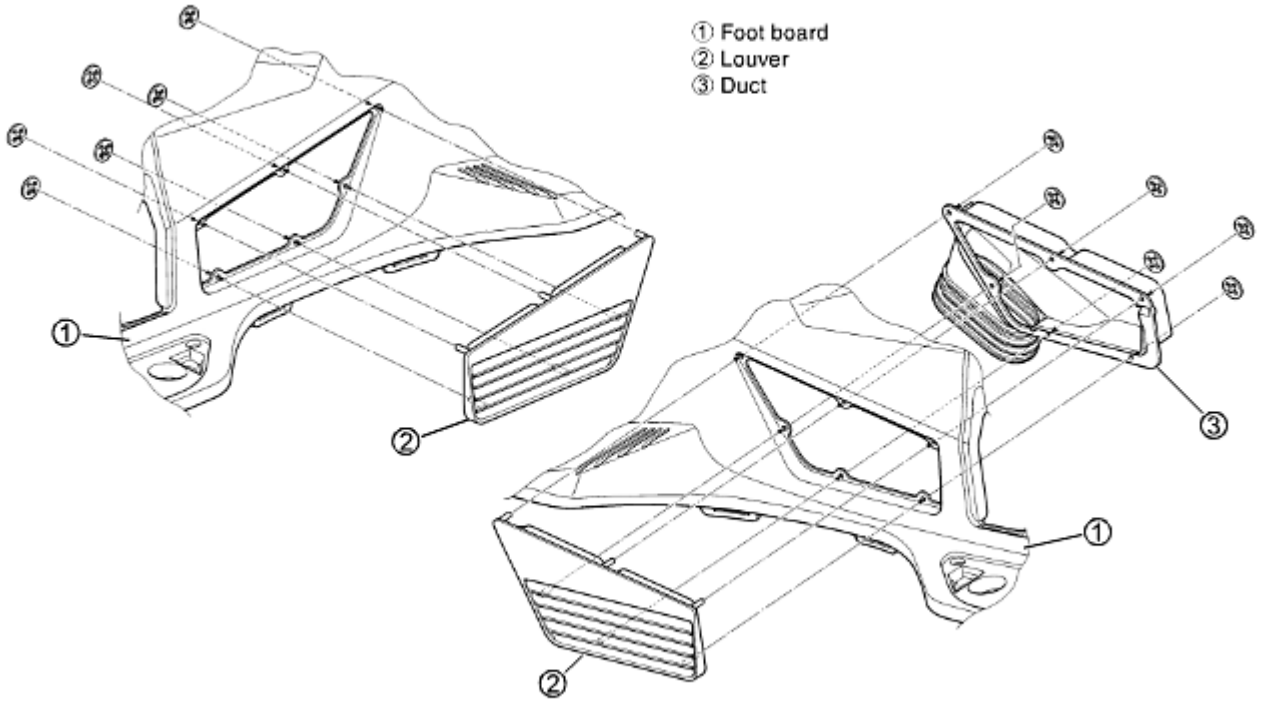
FRONT BOX



① Front box
② Lid
③ Cushion
④ Cushion
⑤ Front inner box
⑥ Cushion

FOOT BOARD ASSEMBLY



① Foot board
② Louver
③ Duct

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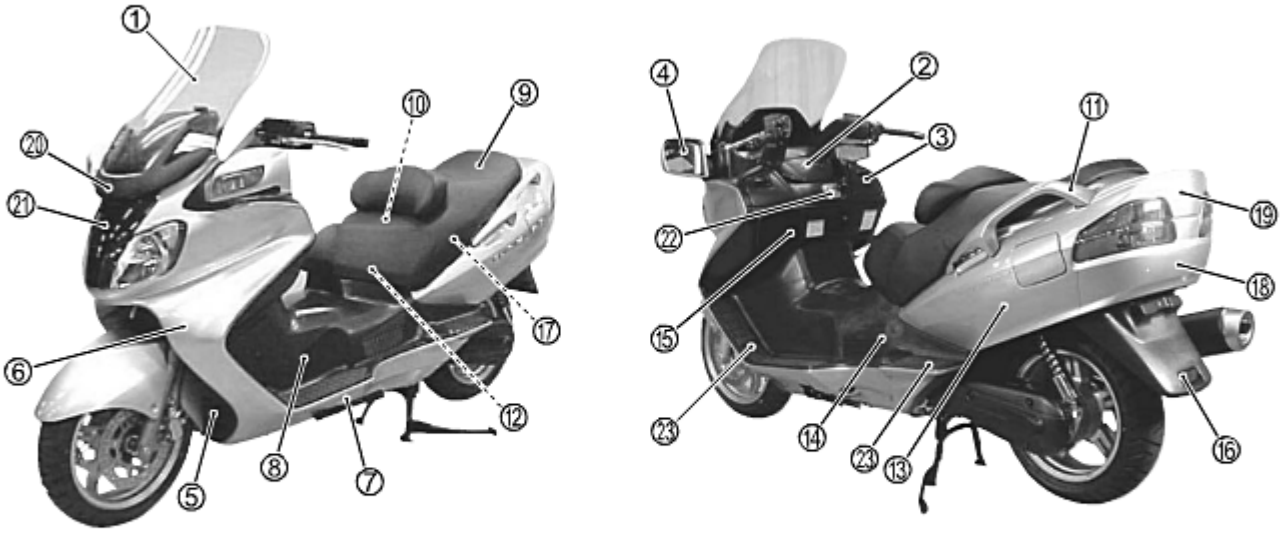
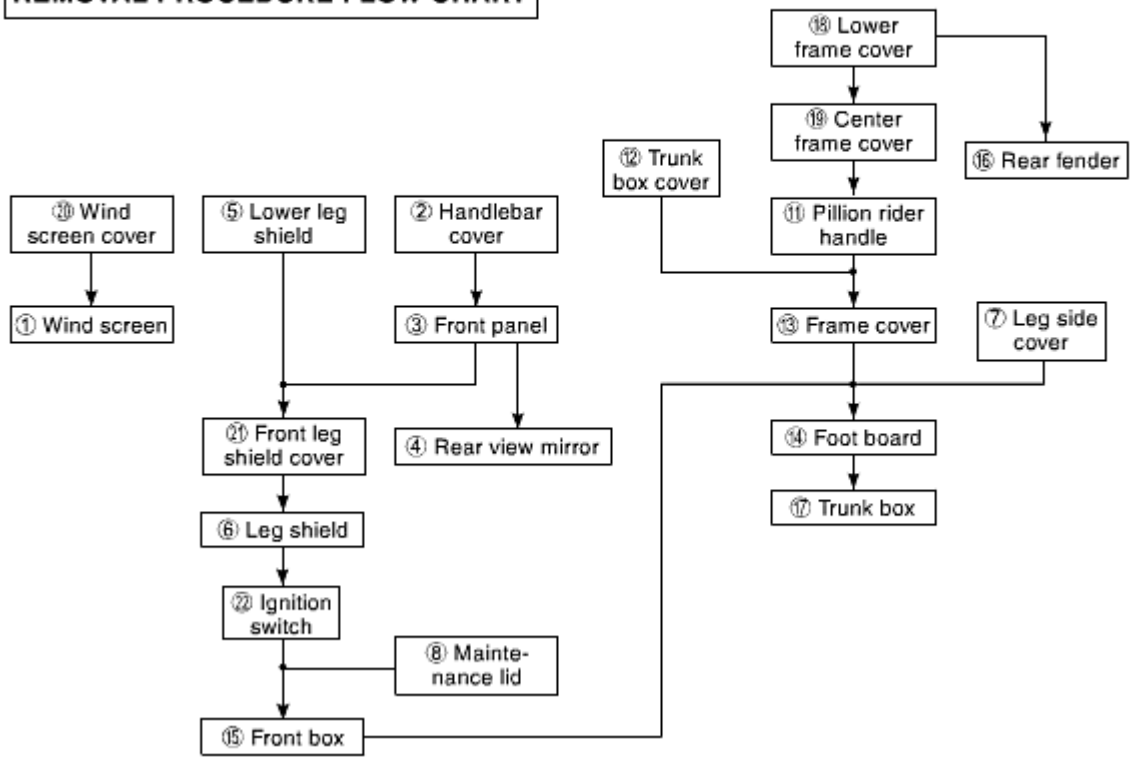
REMOVAL

LOCATION OF EXTERIOR COMPONENTS



① Wind screen (☞9-7)
② Handlebar cover (☞9-8)
③ Front panel (☞9-8)
④ Rear view mirror (right and left) (☞9-9)
⑤ Lower leg shield (☞9-10)
⑥ Leg shield (☞9-10)
⑦ Leg side cover (right and left) (☞9-12)
⑧ Maintenance lid (☞9-13)
⑨ Seat (☞9-13)
⑩ Seat damper (☞9-14)
⑪ Pillion rider handle (right and left) (☞9-15)
⑫ Trunk box cover (☞9-16)
⑬ Frame cover (right and left) (☞9-16)
⑭ Foot board (☞9-18)
⑮ Front box (☞9-18)
⑯ Rear fender (☞9-20)
⑰ Trunk box (☞9-20)
⑱ Lower frame cover (☞9-15)
⑲ Center frame cover (☞9-15)
⑳ Wind screen cover (☞9-7)
㉑ Front leg shield cover (☞9-11)
㉒ Ignition switch (☞9-19)
㉓ Floor mat (right and left)

REMOVAL PROCEDURE FLOW CHART



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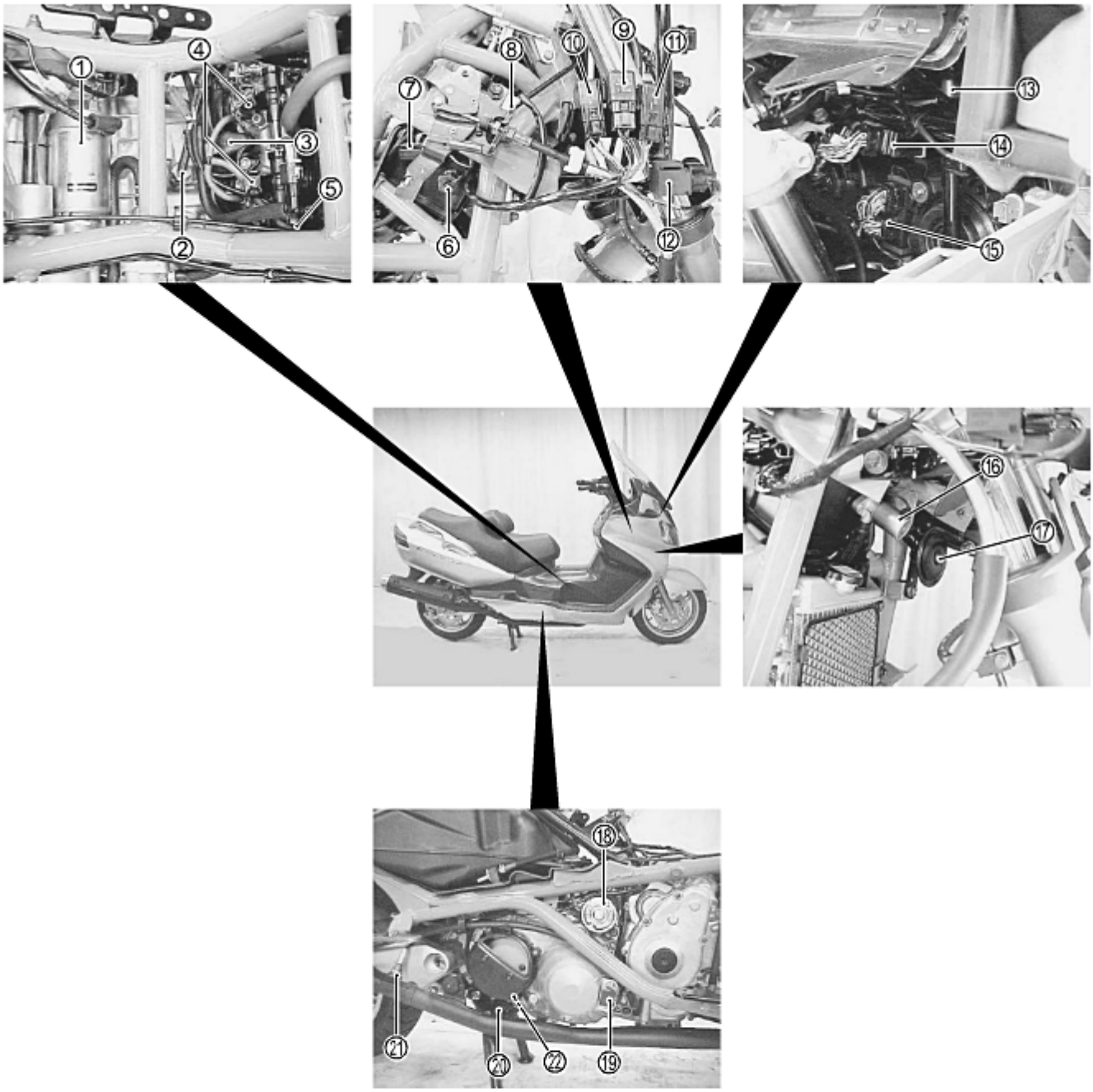
LOCATION OF ELECTRICAL COMPONENTS



① Starter motor
② Engine coolant temp. sensor (☞8-13)
③ IAC valve (☞7-20)
④ Injector (☞6-40)
⑤ Throttle position sensor (☞6-31)
⑥ Intake air temp. sensor (☞6-36)
⑦ Intake air pressure sensor (☞6-29)
⑧ Brake lock switch
⑨ Cooling fan motor relay
⑩ Side-stand relay or Fuel pump relay
⑪ Fuel pump relay or Side-stand relay
⑫ Atmospheric pressure sensor (☞6-37)
⑬ TO sensor (☞6-39)
⑭ CVT control unit
⑮ ECM (Engine Control Module)
⑯ Solenoid (☞12-6)
⑰ Horn
⑱ CVT motor (☞6-45)
⑲ Pulley position sensor (☞6-47)
⑳ Center stand switch
㉑ HO2 sensor (☞6-42)
㉒ CVT secondary pulley revolution sensor (☞6-51)

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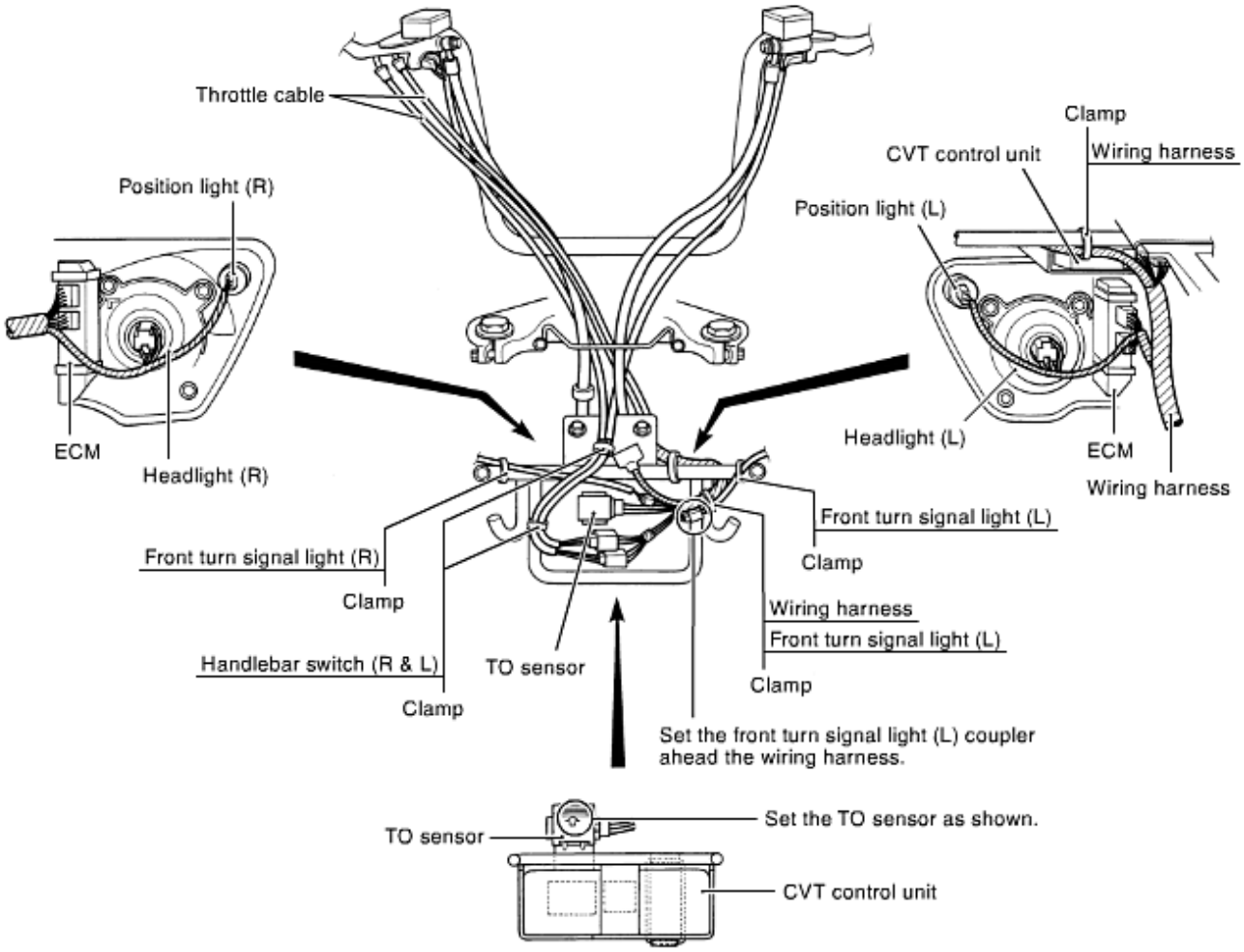
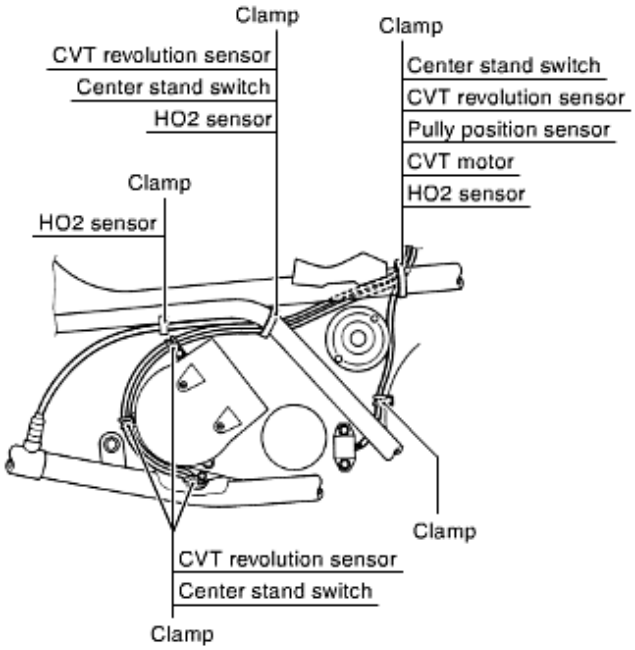
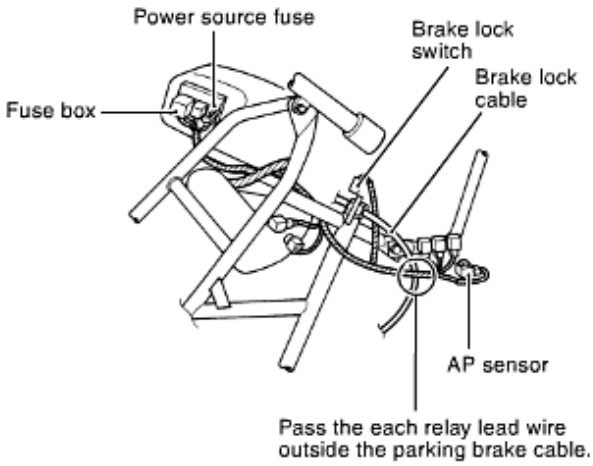
WIRING HARNESS, CABLE AND HOSE ROUTING

WIRING HARNESS ROUTING






Power source fuse
Brake lock switch
Brake lock cable
Fuse box
AP sensor
Pass the each relay lead wire outside the parking brake cable.

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HEATED OXGEN SENSOR (HO2S) INSPECTION

- Remove the foot board. (☞9-18)
- Disconnect the HO2 sensor lead wire coupler.
- Remove the HO2 sensor unit.

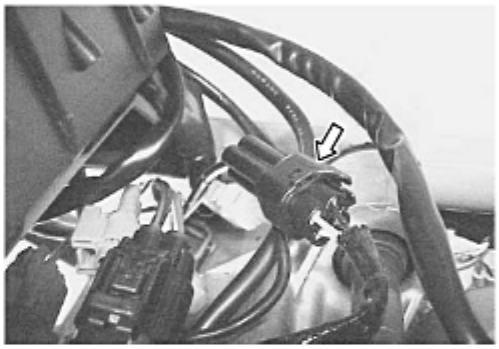
⚠ WARNING

Do not remove the HO2 sensor while it is hot.

CAUTION

Be careful not to expose it to excessive shock.
Do not use an impact wrench while removing or installing the HO2 sensor unit.
Be careful not to twist or damage the sensor lead wire.

- Inspect the HO2 sensor and its circuit referring to flow table of the malfunction code (C44).
- Disconnect the HO2 sensor coupler.
- Check the resistance between the terminals (white – white) of the HO2 sensor.

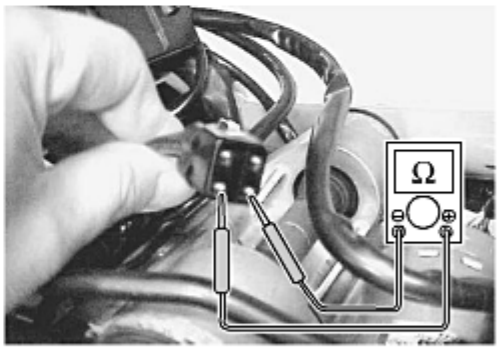


DATA Resistance: 4 – 5 Ω (at 23 °C/73.4 °F)

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

If the resistance is not within the standard range, replace the HO2 sensor with a new one.



NOTE:

** Temperature of the sensor affects resistance value largely.*

** Make sure that the sensor heater is at correct temperature.*

- Connect the HO2 sensor coupler securely.

- Installation is in the reverse order of removal.

CAUTION

Do not apply oil or other materials to the sensor air hole.

- Tighten the sensor unit to the specified torque.

HO2 SENSOR: 47.5 N·m (4.75 kgf-m, 34.3 lb-ft)

- Route the HO2 sensor lead wire into the frame.
- Connect the HO2 sensor coupler.

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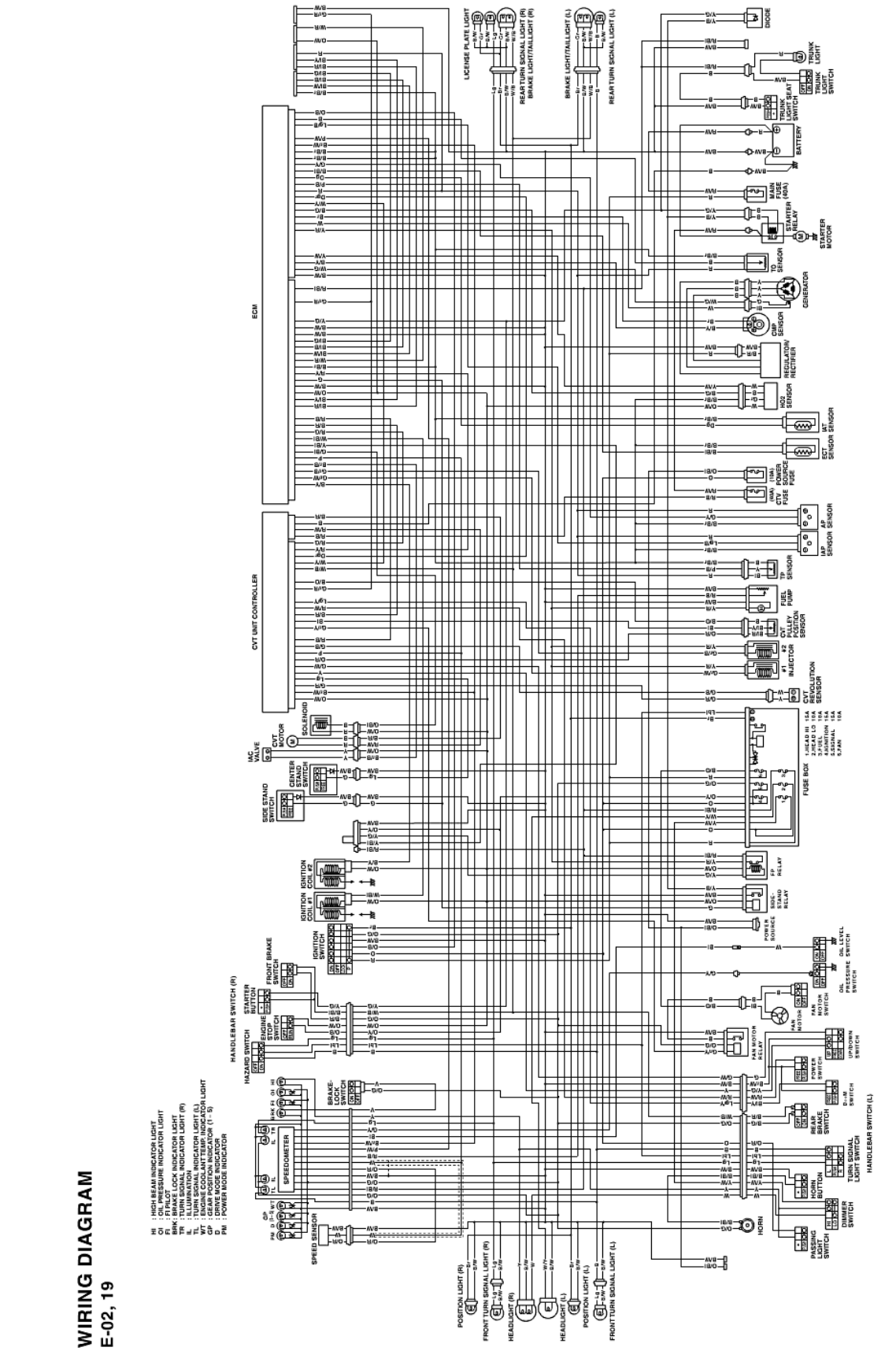
WIRING DIAGRAM

E-02, 19



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